
HAZARDOUS
WASTE SAMPLING
www.epa.gov/.../programs/er/resource/d1_04.htm

SAMPLING RATIONAL
WHY DO WE SAMPLE

- TO CONFIRM COMPLIANCE
  - VERIFICATION OF CLEAN UP
  - MONITOR CLOSURE ACTIVITIES
  - VERIFY WASTE IS NON-HAZARDOUS
  - VERIFY HAZARDOUS WASTE MEETS LDR TREATMENT STANDARDS

SAMPLING RATIONAL
WHY DO WE SAMPLE

- TO CONFIRM NON-COMPLIANCE
  - IMPROPER HAZARDOUS WASTE DETERMINATION
  - INDENTIFY SPILLS OF HAZARDOUS MATERIALS
  - ILLEGAL DISPOSAL
  - IMPROPER HAZARDOUS WASTE MANAGEMENT


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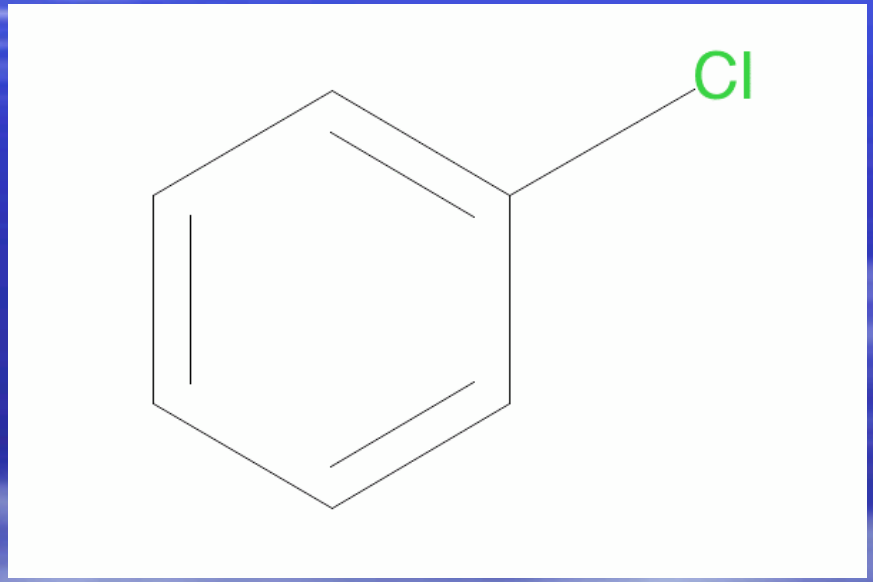
26 1:33PM

SAMPLES ARE A CHEMICAL PHOTOGRAPH OF THE SPECIFIC MATERIAL



LIKE A PHOTOGRAPY, SAMPLE ANLYSIS PROVIDES A PICTURE OF THE CHEMICAL COMPOSITION OF A MATERIAL

SAMPLE ANALYSIS PROVIDES STRONG SUPPORTING EVIDENCE, BUT SHOULD NEVER BE THE SOLE SOURCE OF EVIDENCE TO PROVE AN AREA OF CONCERN

SAMPLES ANALYSIS PROVIDES STRONG SUPPORTING EVIDENCE, BUT SHOULD NEVER BE THE SOLE SOURCE OF EVIDENCE TO PROVE AN AREA OF CONCERN

- MSDS FOR MATERIAL IF AVAILABLE
- STATEMENTS FROM FACILITY REPRESENTATIVE
- PHOTOGRAPHS OF THE MATERIAL TO BE SAMPLED
- MANIFEST, BILL OF LADINGS, ETC THAT MAY SHOW HOW MATERIAL HAS BEEN MANAGED IN THE PAST
- OTHER FACILIITY RECORDS SUCH AS INTERNAL MEMOS, LETTERS, PHOTOGRAPHS, AND SAMPLE ANALYSIS

WHEN IS SAMPLING NECESSARY

- CONFIDENCE IN RESPONSIBLE PARTY TO SAMPLE AND ANALIZE CORRECTLY IS LOW
- SITUATION IS VERY HIGH PROFILE AND VERY LIKEY TO END IN LITIGATION
- ALLEGED AREAS OF CONCERN ARE EXTREMELY SERIOUS AND/OR IMPACT TO THE ENVIRONMENT IS HIGH
- SAMPLE ANALYSIS ARE THE ONLY SOLUTION TO SETTLE OR FINAIZE SITUATION

WHEN IS IT BEST NOT TO SAMPLE

- FACILITY HAS AGREED TO SAMPLE AND ANALYIZE THE MATERIAL IN QUESTION
  - SAMPLE ANALYSIS ARE EXPENSIVE, WE HAVE A LIMITED BUDET. THE AVERAGE SAMPLE EVENT COST $2,000 TO $5,000.
  - IN MANY CASES THE FACILITY CAN OBTAIN A FASTER TURN-AROUND TIME ON THE SAMPLES THEN WE CAN.
  - IT IS HARD FOR A FACILITY TO DISPUTE THEIR OWN SAMPLE ANALYSIS. HOWEVER IT IS IMPORTANT THAT FACILITY AGREES THAT SAMPLES ARE REPRESENTATIVE AND THAT CORRECT ANALYSIS WAS PERFORMED.

WHEN IS IT BEST NOT TO SAMPLE

- THE NECESSARY EQUIPMENT NEEDED TO COLLECT THE SAMPLES IS NOT AVAILABLE.
- CONDITIONS ARE TOO DANGEROUS.


13 2:11 PM

WHEN IS IT BEST NOT TO SAMPLE

- UNCERTAINTY THAT SAMPLING AND ANALYSIS WILL PRODUCE THE RESULTS DESIRED
  - MATERIAL IN QUESTION MAY HAVE BEEN ALTERED PRIOR TO SAMPLING
    - EX. - PAINT WASTE MAY BE SO OLD THAT IT IS NO LONGER IGNITABLE OR CONTAIN THE SOLVENT THAT WOULD HAVE MADE IT A LISTED WASTE.
  - MATERIAL SPILLED MAY NOT MATCH CURRENT MATERIAL IN SUPECTED TANK OR CONTAINER.
  - AVAILABLE WASTE MAY NOT BE REPRESENTATIVE OF WASTE STREAM THAT IS IN QUESTION.


26 1:30PM

DECISION HAS BEEN MADE, WE ARE GOING TO TAKE SAMPLES

- WHAT ARE YOUR OBJECTIVES – WHAT DO YOU INTEND TO PROVE WITH THESE ANALYSIS.
- DO YOU HAVE THE NECESSARY EQUIPMENT TO CORRECTLY COLLECT THE SAMPLE. THIS INCLUDES THE CORRECT PPE.

DECISION HAS BEEN MADE, WE ARE GOING TO TAKE SAMPLES

- DO YOU HAVE ALL THE INFORMATION NEEDED TO DETERMINE WHAT TO SAMPLE AND WHICH ANALYISIS (METHOD) TO PERFORM
  - CHEMICAL AND PHYSICAL STATE OF THE MATERIAL TO BE SAMPLED.
    - IS IT SOLID, LIQUID, OR GAS
    - IS IT HOMOGENOUS OR MULTI-PHASED
  - A GENERAL IDEA OR SUSPICION OF WHAT THE CONSTITUENTS OF CONCERN WILL BE.
    - DOES IT CONTAIN LISTED WASTE CONSTITUENTS OR TCLP CONSTITUENTS OR BOTH - VOLATILES, SEMI-VOLATILES, METALS, CORROSIVES, ETC.

DECISION HAS BEEN MADE, WE ARE GOING TO TAKE SAMPLES

- HOW MANY SAMPLES WILL YOU NEED TO COLLECT TO OBTAIN YOU OBJECTIVES.
  - How many different waste streams are involved.
  - How many containers, tanks, etc. are there in question

- DO YOU HAVE THE NECESSARY EQUIPMENT TO CORRECTLY COLLECT THE SAMPLE. THIS INCLUDES THE CORRECT PPE.

SITE SPECIFIC SAMPLING PLAN

- IN THE EVENT OF A LARGE SAMPLING PROJECT, SAMPLING PLAN SHOULD BE WRITTEN AND APPROVED PRIOR TO COLLECTION OF SAMPLES.

- IN THE EVENT OF A SMALL OR INPROMPT SAMPLING PROJECT, THE SAMPLING PLAN CAN BE PREPARED ON SITE.

    - THIS PLAN CAN BE PREPARED AS AN INDIVIDUAL DOCUMENT OR INCORPORATED ON THE FIELD INTERVIEW FORM (FIF).


26 1:36PM

CONTENTS OF A SAMPING PLAN

- IDENTIFY SAMPLING SITE(S).
- DESCRIPTION OF FIELD SCREENING TO BE CONDUCTED.
- DESCRIPTION OF WHAT IS TO BE SAMPLED AND HOW MANY SAMPLES ARE TO BE COLLECTED.
- LIST OF ANALYSIS TO BE PERFORMED ON EACH SAMPLE.
- SIZE, TYPE, AND NUMBER OF SAMPLE CONTAINERS TO BE USED FOR EACH SAMPLE.
- DESCRIPTION OF HOW EACH SAMPLE CONTAINER WILL BE LABELED AND WHAT PRESERATIVES (IF ANY) WILL BE USED

CONTENTS OF A SAMPING PLAN

- DESCRPTION OF SAMPLING TOOLS AND HOW THE EQUIPMENT WILL BE CLEANED BEFORE USE
- TECHNIQUES TO BE EMPLOYED FOR COLLECTING EACH SAMPLE.
- QA/QC PROTOCOL TO BE USED INCLUDING USE AND HANDING OF CHAIN-OF-CUSTODY DOCUMENTS.
- DOCUMENT THE OFFERING AND HANDLING OF SPILT SAMPLES.
- DECONTAMINATION PROCEDURES OF EQUIPMENT, INCLUDING WASTE MANAGEMENT.

SITE SAFETY PLAN

- LEVEL OF PROTECTION AND TYPE OF PPE TO BE USED AND RATIONALE FOR FINAL DECISION
- IDENTIFY POTENTIAL HAZARDS ESPECIALLY THOSE UNIQUE TO THIS SITE.
- MEDICAL MONITORING
- EMERGENCY PROCEDURES AND PHONE NUMBERS
- DECONTAMINATION OF PERSONEL

FIELD SCREENING

- INITIAL SURVEY TO INDENTIFY HAZARDS
  - VISABLE SITE SURVEY
  - AIR MONITORING TO DETERMINE PROPER PPE
  - INDENTIFY OTHER POTENTIAL HAZARDS
    - HEAVY EQUIPMENT OPERATING IN THE AREA
    - PEST SUCH AS DOGS, WASP AND SNAKES
    - CONGESTED AREA – STACKED DRUMS, DEBRIS, ETC.

FIELD SCREENING

- IDENTIFY POTENTIAL SAMPLE TARGETS
  - IDENTIFY AREAS THAT ARE VISABLY CONTAMINATED AND MAY ALSO HAVE NOTICEABLE ODORS
    - STAINED AND DISCOLORED SOIL
    - DEAD OR STRESSED VEGETATION
    - ERODED AREAS POSSIBLY CREATED BY SOME TYPE OF DISCHARGE

FIELD SCREENING

- IDENTIFY POTENTIAL SAMPLE TARGETS
  - USE OF AIR MONITORS AND METERS TO NARROW DOWN OR DETERMINE THE CONTAINERS, TANKS, ETC. THAT APPEAR TO CONTAIN THE HIGHEST CONCENTRATION OF CONSTITUENTS-OF-CONCERN
    - TVA
    - COMBUSTION GAS INDICATOR
    - MUTI-GAS DETECTORS (PHD^{+})
    - HALOGEN METER
    - PH PAPER
    - “DRAGER” TUBES
    - SOIL VAPOR SMPLES